CLAIMS

[1] A security sticker, comprising:

a surface resin layer (A) that has a weak affinity with a sublimable dye and allows the dye to penetrate;

a print layer (B) that has an affinity with the dye and comprises an image formed in a thickness direction of the layer by the dye;

a self-destructive film layer (C1); and

a pressure-sensitive adhesive layer (D1) in this order,

wherein the self-destructive film layer (C1) comprises at least a dye migration preventive resin layer (E) for preventing migration of the dye and a self-destructive layer (F),

the print layer (B) contains a low-molecular-weight compound with a molecular weight of 1300 or less in an amount of 0% to 20 wt% inclusive,

the dye migration preventive resin layer (E) is a resin layer containing a vinyl resin with a glass transition temperature (Tg) of 70°C or more and a SP value of 9.0 or more as a main component, or is a biaxially stretched film that is stretched by 10% or more in a winding direction and in a width direction respectively, the film having a shrinkage ratio of 1.0% or less in the winding direction after being heated at 150°C for 30 minutes.

[2] The security sticker according to Claim 1, wherein

the dye migration preventive resin layer (E) is a resin layer containing a vinyl resin with a glass transition temperature (Tg) of 70°C or more and a SP value of 9.0 or more as a main component, and

a flexible resin layer (G) with an elongation percentage larger than an elongation percentage of the dye migration preventive resin layer (E) is present between the dye migration preventive resin layer (E) and the pressure-sensitive adhesive layer (D1).

[3] A security sticker, comprising:

a surface resin layer (A) that has a weak affinity with a sublimable dye and allows the dye to penetrate;

a print layer (B) that has an affinity with the dye and comprises an image formed in a thickness direction of the layer by the dye;

a dye migration preventive resin layer (E) for preventing migration of the dye;

a pressure-sensitive adhesive layer (D2) or an adhesive layer (H);

a self-destructive film layer (C2); and

a pressure-sensitive adhesive layer (D1) in this order,

wherein the self-destructive film layer (C2) comprises at least a supporting layer (J) and a self-destructive layer (F),

the supporting layer (J) is disposed on one surface of the self-destructive layer (F),

the print layer (B) contains a low-molecular-weight compound with a molecular weight of 1300 or less in an amount of 0% to 20 wt% inclusive,

the dye migration preventive resin layer (E) is a resin layer containing a vinyl resin with a glass transition temperature (Tg) of 70°C or more and a SP value of 9.0 or more as a main component, or is a biaxially stretched film that is stretched by 10% or more in a winding direction and in a width direction respectively, the film having a shrinkage ratio of 1.0% or less in the winding direction after being heated at 150°C for 30 minutes.

[4] The security sticker according to any one of Claims 1 and 3, wherein the self-destructive layer (F) is a film obtained by subjecting a fragile film or a supporting film to a regular or irregular releasing treatment, or a film comprising a hologram or a diffraction grating.

[5] The security sticker according to any one of Claims 1 and 3, wherein the surface resin layer (A) is a white resin layer.

[6] The security sticker according to any one of Claims 1 and 3, wherein an image formed in the print layer (B) comprises vehicle information comprising a registration number of the vehicle.

[7] The security sticker according to Claim 6, wherein the vehicle information comprises individual information concerning ownership.

[8] A method for manufacturing the security sticker according to Claim 1,

wherein the dye migration preventive resin layer (E) is a resin layer containing a vinyl resin with a glass transition temperature (Tg) of 70°C or more and a SP value of 9.0 or more as a main component,

the method comprising

a dyeing step of heat-treating an original sheet of a security sticker (1) for obtaining a print layer (B),

the original sheet of the security sticker (1) comprising:

a surface resin layer (A) that has a weak affinity with a sublimable dye and allows the dye to penetrate;

an image formation resin layer (K) that contains a low-molecular-weight compound with a molecular weight of 1300 or less in an amount of 0% to 20 wt% inclusive, and has an affinity with the dye;

a self-destructive film layer (C1); and

a pressure-sensitive adhesive layer (D1) in this order,

wherein the self-destructive film layer (C1) comprises at least a dye migration preventive resin layer (E) for preventing migration of the dye and a

self-destructive layer (F), and

the dye migration preventive resin layer (E) is a resin layer containing a vinyl resin with a glass transition temperature (Tg) of 70°C or more and a SP value of 9.0 or more as a main component,

so as to sublimate the dye from the surface resin layer (A) side, allow the dye to penetrate the surface resin layer (A), introduce the dye into the image formation resin layer (K), and form an image in the image formation resin layer (K) in a thickness direction of the image formation resin layer (K).

[9] The method for manufacturing a security sticker according to Claim 8, wherein the dyeing step is a step for obtaining the print layer (B),

the dyeing step comprising:

printing on a transfer paper by using an ink containing the dye so as to form an image on the transfer paper;

contacting subsequently a surface of the transfer paper on which the image is formed with the surface resin layer (A) of the original sheet of the security sticker (1); and then

treating by heat,

the method further comprising a step of removing the transfer paper after the heat treatment.

[10] The method for manufacturing a security sticker according to Claim 8, further comprising a step of forming at least one releasable ink receptive layer (L) on the surface resin layer (A) of the original sheet of the security sticker (1) in advance,

the releasable ink receptive layer (L)

being able to display by print,

having absorption of an ink containing the dye on a surface

side that is not contact with the surface resin layer (A),

being able to be subjected to heat treatment for sublimating the dye and allowing the dye to penetrate the surface resin layer (A) so as to form an image in the image formation resin layer (K), and

being able to be released in a state of a film from the surface resin layer (A) after the heat treatment,

wherein the dyeing step is a step for obtaining the print layer (B),

the dyeing step comprising printing on the ink receptive layer (L) by using the ink containing the dye, and then treating by heat,

the method still further comprising a step of releasing the ink receptive layer (L) after the heat treatment.

[11] A method for manufacturing the security sticker according to Claim 1, wherein the dye migration preventive resin layer (E) is a biaxially stretched film that is stretched by 10% or more in a winding direction and in a width direction respectively, the film having a shrinkage ratio of 1.0% or less in the winding direction after being heated at 150°C for 30 minutes,

the method comprising

a dyeing step of heat-treating an original sheet of a security sticker (2) for obtaining a print layer (B),

the original sheet of the security sticker (2) comprising:

a surface resin layer (A) that has a weak affinity with a sublimable dye and allows the dye to penetrate;

an image formation resin layer (K) that contains a low-molecular-weight compound with a molecular weight of 1300 or less in an amount of 0% to 20 wt% inclusive, and has an affinity with the dye;

a self-destructive film layer (C1); and

a pressure-sensitive adhesive layer (D1) in this order,

wherein the self-destructive film layer (C1) comprises at least a dye migration preventive resin layer (E) for preventing migration of the dye and a self-destructive layer (F), and

the dye migration preventive resin layer (E) is a biaxially stretched film that is respectively stretched by 10% or more in a winding direction and in a width direction, the film having a shrinkage ratio of 1.0% or less in the winding direction after being heated at 150°C for 30 minutes,

so as to sublimate the dye from the surface resin layer (A) side, allow the dye to penetrate the surface resin layer (A), introduce the dye into the image formation resin layer (K), and form an image in the image formation resin layer (K) in a thickness direction of the image formation resin layer (K).

[12] The method for manufacturing a security sticker according to Claim 11, wherein the dyeing step is a step for obtaining the print layer (B),

the dyeing step comprising:

printing on a transfer paper by using an ink containing the dye so as to form an image on the transfer paper;

contacting subsequently a surface of the transfer paper on which the image is formed with the surface resin layer (A) of the original sheet of the security sticker (2); and then

treating by heat,

the method further comprising a step of removing the transfer paper after the heat treatment.

[13] The method for manufacturing a security sticker according to Claim 11, further comprising a step of forming at least one releasable ink receptive

layer (L) on the surface resin layer (A) of the original sheet of the security sticker (2) in advance,

the releasable ink receptive layer (L)

being able to display by print,

having absorption of an ink containing the dye on a surface side that is not contact with the surface resin layer (A),

being able to be subjected to heat treatment for sublimating the dye and allowing the dye to penetrate the surface resin layer (A) so as to form an image in the image formation resin layer (K), and

being able to be released in a state of a film from the surface resin layer (A) after the heat treatment,

wherein the dyeing step is a step for obtaining the print layer (B), comprising printing on the ink receptive layer (L) by using the ink containing the dye, and then treating by heat,

the method still further comprising a step of releasing the ink receptive layer (L) after the heat treatment.

[14] A method for manufacturing the security sticker according to Claim 3, wherein the dye migration preventive resin layer (E) is a resin layer containing an acrylic resin with a glass transition temperature (Tg) of 70°C or more and a SP value of 9.0 or more as a main component,

the method comprising:

a dyeing step of heat-treating an original sheet of a security sticker (3) for obtaining a print layer (B),

the original sheet of the security sticker (3) comprising

a surface resin layer (A) that has a weak affinity with a sublimable dye and allows the dye to penetrate,

an image formation resin layer (K) that contains a low-molecular-weight compound with a

molecular weight of 1300 or less in an amount of 0% to 20 wt% inclusive and has an affinity with the dye,

a dye migration preventive resin layer (E) that contains a vinyl resin with a glass transition temperature (Tg) of 70°C or more and a SP value of 9.0 or more and prevents migration of the dye,

a pressure-sensitive adhesive layer (D2) or an adhesive layer (H), and

a releasing member (M) in this order,

so as to sublimate the dye from the surface resin layer (A) side, allow the dye to penetrate the surface resin layer (A), introduce the dye into the image formation resin layer (K), and form an image in the image formation resin layer (K) in a thickness direction of the image formation resin layer (K);

a step of releasing the releasing member (M) subsequently; and

a step of laminating a self-destructive film layer (C2) of a laminate with the pressure-sensitive adhesive layer (D2) or the adhesive layer (H),

the laminate comprising the self-destructive film layer (C2) and a pressure-sensitive adhesive layer (D1) in this order,

the self-destructive film layer (C2) comprising at least a supporting layer (J) and a self-destructive layer (F).

[15] The method for manufacturing a security sticker according to Claim 14, wherein the dyeing step is a step for obtaining the print layer (B),

the dyeing step comprising:

printing on a transfer paper by using an ink containing the dye so as to form an image on the transfer paper;

contacting subsequently a surface of the transfer paper on which the image is formed with the surface resin layer (A) of the original sheet of the security sticker (3); and then

treating by heat,

the method further comprising a step of removing the transfer paper after the heat treatment.

[16] The method for manufacturing a security sticker according to Claim 14, further comprising a step of forming at least one releasable ink receptive layer (L) on the surface resin layer (A) of the original sheet of the security sticker (3) in advance,

the releasable ink receptive layer (L)

being able to display by print,

having absorption of an ink containing the dye on a surface side that is not contact with the surface resin layer (A),

being able to be subjected to heat treatment for sublimating the dye and allowing the dye to penetrate the surface resin layer (A) so as to form an image in the image formation resin layer (K), and

being able to be released in a state of a film from the surface resin layer (A) after the heat treatment,

wherein the dyeing step is a step for obtaining the print layer (B), the dyeing step comprising printing on the ink receptive layer (L) by using the ink containing the dye, and then treating by heat,

the method still further comprising a step of releasing the ink receptive layer (L) after the heat treatment.

[17] A method for manufacturing the security sticker according to Claim 3, wherein the dye migration preventive resin layer (E) is a biaxially stretched film that is stretched by 10% or more in a winding direction and in a width direction respectively, the film having a shrinkage ratio of 1.0% or

less in the winding direction after being heated at 150°C for 30 minutes,

the method comprising:

a dyeing step of heat-treating an original sheet of a security sticker (4) for obtaining a print layer (B),

the original sheet of the security sticker (4) comprising

a surface resin layer (A) that has a weak affinity with a sublimable dye and allows the dye to penetrate,

an image formation resin layer (K) that contains a low-molecular-weight compound with a molecular weight of 1300 or less in an amount of 0% to 20 wt% inclusive and has an affinity with the dye,

a dye migration preventive resin layer (E) which is a biaxially stretched film that is stretched by 10% or more in a winding direction and in a width direction respectively, the film having a shrinkage ratio of 1.0% or less in the winding direction after being heated at 150°C for 30 minutes,

a pressure-sensitive adhesive layer (D2) or an adhesive layer (H), and

a releasing member (M) in this order,

so as to sublimate the dye from the surface resin layer (A) side, allow the dye to penetrate the surface resin layer (A), introduce the dye into the image formation resin layer (K), and form an image in the image formation resin layer (K) in a thickness direction of the image formation resin layer (K);

a step of releasing the releasing member (M) subsequently; and

a step of laminating a self-destructive film layer (C2) of a

laminate with the pressure-sensitive adhesive layer (D2) or the adhesive layer (H),

the laminate comprising the self-destructive film layer (C2) and a pressure-sensitive adhesive layer (D1) in this order,

the self-destructive film layer (C2) comprising at least a supporting layer (J) and a self-destructive layer (F).

[18] The method for manufacturing a security sticker according to Claim 17, wherein the dyeing step is a step for obtaining the print layer (B),

the dyeing step comprising:

printing on a transfer paper by using an ink containing the dye so as to form an image on the transfer paper;

contacting subsequently a surface of the transfer paper on which the image is formed with the surface resin layer (A) of the original sheet of the security sticker (4); and then

treating by heat,

the method further comprising a step of removing the transfer paper after the heat treatment.

[19] The method for manufacturing a security sticker according to Claim 17, further comprising a step of forming at least one releasable ink receptive layer (L) on the surface resin layer (A) of the original sheet of the security sticker (4) in advance,

the releasable ink receptive layer (L)

being able to display by print,

having absorption of an ink containing the dye on a surface side that is not contact with the surface resin layer (A),

being able to be subjected to heat treatment for sublimating the dye and allowing the dye to penetrate the surface resin layer (A)

so as to form an image in the image formation resin layer (K), and

being able to be released in a state of a film from the surface resin layer (A) after the heat treatment,

wherein the dyeing step is a step for obtaining the print layer (B),

the dyeing step comprising printing on the ink receptive layer (L) by using the ink containing the dye, and then treating by heat,

the method still further comprising a step of releasing the ink receptive layer (L) after the heat treatment.

[20] An original sheet of a security sticker (1) for the method for manufacturing a security sticker according to Claim 8, comprising:

a surface resin layer (A) that has a weak affinity with a sublimable dye and allows the dye to penetrate;

an image formation resin layer (K) that contains a low-molecular-weight compound with a molecular weight of 1300 or less in an amount of 0% to 20 wt% inclusive, and has an affinity with the dye;

a self-destructive film layer (C1); and

a pressure-sensitive adhesive layer (D1) in this order,

wherein the self-destructive film layer (C1) comprises at least a dye migration preventive resin layer (E) for preventing migration of the dye and a self-destructive layer (F), and

the dye migration preventive resin layer (E) is a resin layer containing a vinyl resin with a glass transition temperature (Tg) of 70°C or more and a SP value of 9.0 or more as a main component.

[21] An original sheet of a security sticker (2) for the method for manufacturing a security sticker according to Claim 11, comprising:

a surface resin layer (A) that has a weak affinity with a sublimable dye and allows the dye to penetrate;

an image formation resin layer (K) that contains a

low-molecular-weight compound with a molecular weight of 1300 or less in an amount of 0% to 20 wt% inclusive, and has an affinity with the dye;

a self-destructive film layer (C1); and

a pressure-sensitive adhesive layer (D1) in this order,

wherein the self-destructive film layer (C1) comprises at least a dye migration preventive resin layer (E) for preventing migration of the dye and a self-destructive layer (F), and

the dye migration preventive resin layer (E) is a biaxially stretched film that is stretched by 10% or more in a winding direction and in a width direction respectively, the film having a shrinkage ratio of 1.0% or less in the winding direction after being heated at 150°C for 30 minutes.

[22] An original sheet of a security sticker (3) for the method for manufacturing a security sticker according to Claim 14, comprising:

a surface resin layer (A) that has a weak affinity with a sublimable dye and allows the dye to penetrate;

an image formation resin layer (K) that contains a low-molecular-weight compound with a molecular weight of 1300 or less in an amount of 0% to 20 wt% inclusive, and has an affinity with the dye;

a dye migration preventive resin layer (E) that contains a vinyl resin with a glass transition temperature (Tg) of 70°C or more and a SP value of 9.0 or more, and prevents migration of the dye;

a pressure-sensitive adhesive layer (D2) or an adhesive layer (H); and

a releasing member (M) in this order.

[23] An original sheet of a security sticker (4) for the method for manufacturing a security sticker according to Claim 17, comprising:

a surface resin layer (A) that has a weak affinity with a sublimable dye and allows the dye to penetrate;

an image formation resin layer (K) that contains a low-molecular-weight compound with a molecular weight of 1300 or less in an amount of 0% to 20 wt% inclusive, and has an affinity with the dye;

a dye migration preventive resin layer (E) which is a biaxially stretched film that is stretched by 10% or more in a winding direction and in a width direction respectively, the film having a shrinkage ratio of 1.0% or less in the winding direction after being heated at 150°C for 30 minutes;

a pressure-sensitive adhesive layer (D2) or an adhesive layer (H); and

a releasing member (M) in this order.